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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/733,860

12/10/2003

Torsten Berger

SNS-017

8039

21323

7590

03/02/2005

EXAMINER

CASCHERA, ANTONIO A

TESTA, HURWITZ & THIBEAULT, LLP
HIGH STREET TOWER
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BOSTON, MA 02110

ART UNIT

PAPER NUMBER

2676

DATE MAILED: 03/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/733,860

Applicant(s)

BERGER, TORSTEN

Examiner

Antonio A Caschera

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18 and 20-33 is/are rejected.
- 7) ☒ Claim(s) 17 and 19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: #2106 and 2108 of Figures 21a-c, #2302 of Figures 23a-c and #2622 of Figures 26a-c. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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2. Claims 1-6, 10, 11 and 30-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Dumesny et al. (U.S. Publication 2002/0154132 A1).

In reference to claims 1, 10 and 30, Dumesny et al. discloses a user interface and computer system operating the user interface, for applying a texture to a 3D graphic object and modifying the texture using several techniques (see paragraph 9, lines 1-5, paragraph 13, lines 1-7 and paragraph 76, lines 7-11). Dumesny et al. further discloses a “Texture Applicator” which employs a direct object manipulation paradigm, allowing a user to manipulate a graphic object directly by adjusting positions within the texture space to which associated polygons of the 3D object are mapped (see paragraph 43). Note, the user is allowed to directly manipulate texture data which corresponds to 3D object polygons in Dumesny et al., therefore the office interprets such user-selected adjustments to inherently disclose the user defining a region of the 3D object to adjust and map texture thereto. Dumesny et al. further discloses the user interface comprising of tool buttons, allowing for the user to modify a texture mapping using various techniques, these techniques include translation, rotation and scaling (see paragraph 48, 51 and 56 along with Figures 11a-b, 13a-b and 15a-b). Note, the office interprets each of these buttons in Dumesny et al. functionally equivalent to the “active location” of applicant’s claims. Further, in reference to claim 10, the office interprets the user interface of Dumesny et al. equivalent to a “haptic graphical user interface” because mouse movements determine the adjustment and selection of adjustment mode by clicking and/or dragging mouse functions (see paragraph 43, lines 1-11 and paragraph 49). Also, in reference to claim 30, Dumesny et al. discloses a storage memory medium for storing code to perform the texture mapping/adjusting techniques above (see paragraph 75, lines 7-20 and paragraph 76). Further, the office interprets the computer system

operating the user interface above to inherently comprise of some sort of processor for reading and executing the above code.

In reference to claims 2-4 and 11, Dumesny et al. discloses all of the claim limitations as applied to claims 1 and 10 respectively above. Dumesny et al. further discloses the user interface comprising of tool buttons, allowing for the user to modify a texture mapping using various techniques, these techniques include translation, rotation and scaling (see paragraph 48, 51 and 56 along with Figures 11a-b, 13a-b and 15a-b). Note, the office interprets each of these buttons in Dumesny et al. functionally equivalent to the “active location” of applicant’s claims.

In reference to claim 5, Dumesny et al. discloses all of the claim limitations as applied to claim 1 above in addition, Dumesny et al. discloses the texture as an image or a 2D array of pixel information (see paragraph 4, lines 1-4).

In reference to claim 6, Dumesny et al. discloses all of the claim limitations as applied to claim 1 above in addition, Dumesny et al. discloses the texture as a tiled pattern (see paragraph 4, lines 1-6).

In reference to claim 31, Dumesny et al. discloses all of the claim limitations as applied to claim 30 above. Note, the office interprets Dumesny et al. to inherently comprise of some sort of “selection module” adapted to select one of the at least one active locations of the user interface element based on the location of the object and cursor since Dumesny et al. discloses a computer system implementing the user interface and since the user is capable of adjusting the texture mapping by selecting the mode of adjustment from translation, rotation and scaling using a mouse cursor and button on the user interface (see paragraph 43, lines 1-11 and paragraph 49).

In reference to claim 32, Dumesny et al. discloses all of the claim limitations as applied to claim 31 above. Note, the office interprets Dumesny et al. to inherently comprise of some sort of “repositioning module” adapted to move the cursor to a 3D position one of the at least one active locations of the user interface since Dumesny et al. discloses a computer system implementing the user interface and since the user is capable of adjusting the texture mapping by selecting the mode of adjustment from translation, rotation and scaling using a mouse cursor and button on the user interface (see paragraph 43, lines 1-11 and paragraph 49).

In reference to claim 33, Dumesny et al. discloses all of the claim limitations as applied to claim 30 above. Note, the office interprets the user interface of Dumesny et al. equivalent to a “haptic graphical user interface” comprising “haptic elements” because mouse movements determine the adjustment and selection of adjustment mode by clicking and/or dragging mouse functions (see paragraph 43, lines 1-11 and paragraph 49).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumesny et al. (U.S. Publication 2002/0154132 A1) in view of Leather et al. (U.S. Patent 6,707,458 B1).

In reference to claim 7, Dumesny et al. discloses all of the claim limitations as applied to claim 1 above. Dumesny et al. does not explicitly disclose the texture as an embossing pattern

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however Leather et al. does. Leather et al. discloses a method and apparatus for texture mapping using techniques in which the texture pattern maybe bump mapped to perform embossing effects (see column 4, lines 38-40 and columns 9-10, lines 57-3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the texturing techniques of Leather et al. with the user interface texture mapping/adjusting techniques of Dumesny et al. in order to produce a more realistic texture tiled surface, eliminating the ability of a viewer of the displayed textured to notice any repeating patterns in the texture (see column 4, lines 41-45 of Leather et al.).

In reference to claims 8 and 9, Dumesny et al. and Leather et al. disclose all of the claim limitations as applied to claim 7 above. Leather et al. discloses setting certain specific texture tiling parameters (see column 16, lines 24-67), which the office interprets as inherently disclosing adjusting an embossing height and depth normal to the surface of the object. Further, the effect of embossing inherently comprises height and depth associated with it including some sort of height and/or depth parameters therefore, the ability to emboss textures is inherent in Leather et al. as these parameters, height and depth, directly effect the output of the embossing technique.

4. Claims 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumesny et al. (U.S. Publication 2002/0154132 A1) in view of Yanof et al. (U.S. Patent 5,371,778).

In reference to claim 23, Dumesny et al. discloses a user interface and computer system operating the user interface, for applying a texture to a 3D graphic object and modifying the texture using several techniques (see paragraph 9, lines 1-5, paragraph 13, lines 1-7 and paragraph 76, lines 7-11). Dumesny et al. further discloses a "Texture Applicator" which

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employs a direct object manipulation paradigm, allowing a user to manipulate a graphic object directly by adjusting positions within the texture space to which associated polygons of the 3D object are mapped (see paragraph 43). Note, the user is allowed to directly manipulate texture data which corresponds to 3D object polygons in Dumesny et al., therefore the office interprets such user-selected adjustments to inherently disclose the user defining a region of the 3D object to adjust and map texture thereto. Dumesny et al. further discloses the user interface comprising of tool buttons, allowing for the user to modify a texture mapping using various techniques, these techniques include translation, rotation and scaling (see paragraph 48, 51 and 56 along with Figures 11a-b, 13a-b and 15a-b). Note, the office interprets each of these buttons in Dumesny et al. functionally equivalent to the “active location” of applicant’s claims. Dumesny et al. does not explicitly disclose modifying a transformation matrix used in mapping points on the surface of the object to texture however Yanof et al. does. Yanof et al. discloses a display and adjustment of 3D projections using a transformation matrix whereby if a change of viewing angle of the projection is made, the transformation matrix is modified (see column 2, lines 39-55 and column 7, lines 1-27). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the transformation techniques of Yanof et al. with the texture adjustment/mapping techniques of Dumesny et al. in order to provide a display system wherein a real-time adjustment of different views of a 3D object is performed (see column 2, lines 29-36 of Yanof et al.).

In reference to claim 24, Dumesny et al. and Yanof et al. disclose all of the claim limitations as applied to claim 23 above. Dumesny et al. further discloses rendering and

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displaying the 3D object based upon the modified texture mapping technique (see paragraph 9, lines 5-8).

In reference to claim 25, Dumesny et al. and Yanof et al. disclose all of the claim limitations as applied to claim 24 above. Dumesny et al. further discloses rendering and displaying the 3D object based upon the modified texture mapping technique (see paragraph 9, lines 5-8). Yanof et al. also discloses displaying an image including 4 additional view ports which “keep” depth values or k values consistent by showing distortions in 3D object faces (see column 4, lines 19-45 and Figure 2).

In reference to claim 26, Dumesny et al. and Yanof et al. disclose all of the claim limitations as applied to claim 25 above in addition, Yanof et al. discloses generating image volume data in the form of voxels (see column 3, lines 62-67).

In reference to claim 27, Dumesny et al. and Yanof et al. disclose all of the claim limitations as applied to claim 25 above in addition, Yanof et al. discloses an editing means enabling an operator to make an effective removal of unwanted voxels from the display region (see column 5, lines 17-30). Note, the office interprets Yanof et al. to inherently disclose editing these voxels based upon an activation of a user signal as Yanof et al. further discloses using a cursor control means to move a cursor on the display (see column 2, lines 54-55).

In reference to claim 28, Dumesny et al. and Yanof et al. disclose all of the claim limitations as applied to claim 27 above. Note, the office interprets Yanof et al. to inherently disclose editing these voxels based upon an activation of a user signal as Yanof et al. further discloses using a cursor control means to move a cursor on the display (see column 2, lines 54-

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55) and a cursor positioning means such as a mouse or trackball (see column 8, lines 35-38) which comprise of buttons to click and release.

5. Claims 12-16, 18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumesny et al. (U.S. Publication 2002/0154132 A1) in view of Brown (U.S. Patent 5,461,709).

In reference to claim 12, Dumesny et al. discloses all of the claim limitations as applied to claim 10 above. Dumesny et al. does not explicitly disclose haptic feedback comprising a gravity well associated with an active location however Brown does. Brown discloses a system for supplying input data establishing the location of data points in a model space for a 3D CAD design application (see column 1, lines 5-7 and column 2, lines 5-8). Brown discloses the ability to move the cursor close to an indexed point whereby a “sweet spot” of a few pixels wide is established near this indexed point and if the cursor is moved within this, “sweet spot” the cursor is locked into precisely a horizontal or vertical position with the indexed point (see column 9, lines 40-46). Note, the office interprets the “sweet spot” of Brown functionally equivalent to the “gravity well” of applicant’s claim. It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the data point location techniques of Brown with the texture adjusting/mapping techniques of Dumesny et al. in order to provide an easier and more user-friendly interface, employing a sophisticated drawing aid based on the interpretation of the user controlled cursor, supplying extensive feedback control to the user (see column 3, lines 22-34 of Brown).

In reference to claim 13, Dumesny et al. discloses all of the claim limitations as applied to claim 10 above. Dumesny et al. does not explicitly disclose haptic feedback comprising a

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haptic constraint however Brown does. Brown discloses a system for supplying input data establishing the location of data points in a model space for a 3D CAD design application (see column 1, lines 5-7 and column 2, lines 5-8). Brown discloses the ability to move the cursor close to an indexed point whereby a “sweet spot” of a few pixels wide is established near this indexed point and if the cursor is moved within this, “sweet spot” the cursor is locked into precisely a horizontal or vertical position with the indexed point (see column 9, lines 40-46). Note, the office interprets the “sweet spot” of Brown functionally equivalent to the “gravity well” of applicant’s claim. Brown further discloses the user to place a data point at the current position within the “sweet spot” and lock the point thereby allowing the user to snap to another item while allowing the above constraint, keeping the locked point aligned, to apply (see column 9, lines 59-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the data point location techniques of Brown with the texture adjusting/mapping techniques of Dumesny et al. in order to provide an easier and more user-friendly interface, employing a sophisticated drawing aid based on the interpretation of the user controlled cursor supplying extensive feedback control to the user (see column 3, lines 22-34 of Brown).

In reference to claim 14, Dumesny et al. and Brown disclose all of the claim limitations as applied to claim 13 above in addition, Brown discloses constraining a “snap to” cursor movement to a current plane (see column 15, lines 40-46) which the office interprets as inherently disclosing constraining cursor movement to the surface of an object as a specific plane makes up the surface of an object (see column 15, lines 26-34 of Brown).

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In reference to claim 15, Dumesny et al. and Brown disclose all of the claim limitations as applied to claim 13 above in addition, Brown discloses constraining a “snap to” cursor movement to a current plane (see column 15, lines 40-46) which the office interprets as inherently disclosing constraining cursor movement to a user defined region (see column 15, lines 26-34 of Brown).

In reference to claim 16, Dumesny et al. and Brown disclose all of the claim limitations as applied to claim 13 above in addition, Brown discloses the ability to move the cursor close to an indexed point whereby a “sweet spot” of a few pixels wide is established near this indexed point and if the cursor is moved within this, “sweet spot” the cursor is locked into precisely a horizontal or vertical position with the indexed point (see column 9, lines 40-46). Note, this locked to a horizontal or vertical position of Brown is interpreted as equivalent to being constraint to an axis of applicant’s claim (see Figure 7 of Brown).

In reference to claim 18, Dumesny et al. and Brown disclose all of the claim limitations as applied to claim 13 above. Although Brown discloses constraining the cursor to an axis via a “sweet spot” and locking technique (see claim 16 above), neither Dumesny et al. nor Brown explicitly disclose constraining the cursor to a loop. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to constrain the cursor to any geometric figure including a circular shape or loop. Applicant has not disclosed that constraining the cursor to a loop provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant’s invention to perform equally well with the axis constraint of Brown because the exact shape that the cursor is constraint to is a matter of design choice as preferred by the design

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and to which best suits the application at hand. Therefore, it would have been obvious to one of ordinary skill in this art to modify the combination of Dumesny et al. and Brown to obtain the invention as specified in claim 18.

In reference to claims 20-22, Dumesny et al. and Brown disclose all of the claim limitations as applied to claim 13 above. Dumesny et al. further discloses the user interface comprising of tool buttons, allowing for the user to modify a texture mapping using various techniques, these techniques include translation, rotation and scaling (see paragraph 48, 51 and 56 along with Figures 11a-b, 13a-b and 15a-b). Note, the office interprets each of these buttons in Dumesny et al. functionally equivalent to the “active location” of applicant’s claims. Brown further discloses the user to place a data point at the current position within the “sweet spot” and lock the point thereby allowing the user to snap to another item while allowing the above constraint, keeping the locked point aligned, to apply (see column 9, lines 59-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the data point location techniques of Brown with the texture adjusting/mapping techniques of Dumesny et al. in order to provide an easier and more user-friendly interface, employing a sophisticated drawing aid based on the interpretation of the user controlled cursor supplying extensive feedback control to the user (see column 3, lines 22-34 of Brown). Further note, it would have been obvious to one of ordinary skill in the art to modify the combination of Dumesny et al. and Brown in order to enable a haptic constraint (“locking” and “sweet spot” functions of Brown) when a certain texture adjustment method is selected (translation, rotation, scaling techniques of Dumesny et al.) in order to automatically provide the haptic constraint without making the user manually turn on/off the constraint.

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6. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dumesny et al. (U.S. Publication 2002/0154132 A1), Yanof et al. (U.S. Patent 5,371,778) and further in view of Brown (U.S. Patent 5,461,709).

In reference to claim 29, Dumesny et al. and Yanof et al. disclose all of the claim limitations as applied to claim 23 above. Neither Dumesny et al. nor Yanof et al. explicitly disclose arming or disarming a haptic constraint however Brown does. Brown discloses a system for supplying input data establishing the location of data points in a model space for a 3D CAD design application (see column 1, lines 5-7 and column 2, lines 5-8). Brown discloses the ability to move the cursor close to an indexed point whereby a “sweet spot” of a few pixels wide is established near this indexed point and if the cursor is moved within this, “sweet spot” the cursor is locked into precisely a horizontal or vertical position with the indexed point (see column 9, lines 40-46). Note, the office interprets the “sweet spot” of Brown functionally equivalent to the “gravity well” of applicant’s claim. Brown further discloses the user to place a data point at the current position within the “sweet spot” and lock the point thereby allowing the user to snap to another item while allowing the above constraint, keeping the locked point aligned, to apply (see column 9, lines 59-65). Brown discloses locking and unlocking the point using a lock button (see column 9, line 65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the data point location techniques of Brown with the transformation techniques of Yanof et al. and texture adjusting/mapping techniques of Dumesny et al. in order to provide an easier and more user-friendly interface, employing a sophisticated drawing aid based on the interpretation of the user controlled cursor supplying extensive feedback control to the user (see column 3, lines 22-34 of Brown).

Allowable Subject Matter

7. Claims 17 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In reference to claim 17, the prior art of record (Dumesny et al. (U.S. Publication 2002/0154132 A1), Leather et al. (U.S. Patent 6,707,458 B1), Yanof et al. (U.S. Patent 5,371,778) and Brown (U.S. Patent 5,461,709)) does not explicitly disclose a user interface comprising at least one haptic detent active on an axis in combination with the further limitations of depended upon claim 16.

In reference to claim 19, the prior art of record (Dumesny et al. (U.S. Publication 2002/0154132 A1), Leather et al. (U.S. Patent 6,707,458 B1), Yanof et al. (U.S. Patent 5,371,778) and Brown (U.S. Patent 5,461,709)) does not explicitly disclose a user interface comprising at least one haptic detent active on a loop in combination with the further limitations of depended upon claim 18.

References Cited

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- a. Sacerdoti et al. (U.S. Patent 6,188,403 B1)
 - Sacerdoti et al. discloses a 3D graphics generation and display application for presenting graphics with customizable attributes including texture.

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- b. Netschke et al. (U.S. Patent 6,204,851 B1)
 - Netschke et al. discloses an apparatus and method of applying an effect to graphical data using the OPENGGL application program interface.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Antonio Caschera whose telephone number is (703) 305-1391. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (703)-308-6829.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

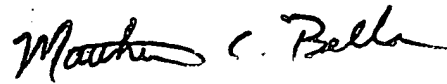
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

aac

2/24/05

A handwritten signature in black ink, reading "Matthew C. Bella". The signature is written in a cursive, flowing style.

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600